Propositions associated with the PhD thesis

Causes and consequences of glucocorticoid variation in zebra finches

Blanca Jimeno

1. Determining the mechanisms by which organisms cope with a capricious world will be critical for understanding why some organisms thrive in the face of change and others do not.

Romero, L. M., & Wingfield, J. C. (2015). Tempests, poxes, predators, and people: stress in wild animals and how they cope. Oxford University Press.

2. Early experience "gets under the skin."[1] (…): it weaves its way into the neural and biological infrastructure of the child to impact developmental trajectories and outcomes.[2]

1. Hyman, S. E. (2009). How adversity gets under the skin. Nature Neuroscience, 12(3), 241.
2. Nelson, C. A. (2013). Biological embedding of early life adversity. JAMA pediatrics, 167(12), 1098-1100.

3. Evolutionary changes in endocrine regulation are an especially important mechanism by which entire suites of traits evolve in a coordinated manner in response to environmental change.

Williams, T. D. (2008). Individual variation in endocrine systems: moving beyond the 'tyranny of the Golden Mean'. Philosophical Transactions of the Royal Society B: Biological Sciences, 363(1497), 1687-1698.

4. Levels of the "stress hormones" cortisol and corticosterone are being used by ecologists as indicators of physiological stress in vertebrates[1]. However, the concept of stress has been subject of scientific debate ever since its first use in physiological and biomedical research[2]. What is commonly named as "stress" may not necessarily relate to potentially harmful or unpredicted stimuli, but acute or gradual, unpredicted or not, increases in metabolic needs[3].

1. Romero, L. M. (2004). Physiological stress in ecology: lessons from biomedical research. Trends in Ecology & Evolution, 19(5), 249-255.
2. Koolhaas, J. M., et al. (2011). Stress revisited: a critical evaluation of the stress concept. Neuroscience & Biobehavioral Reviews, 35(5), 1291-1301.
3. This thesis.

5. Investigating variation on physiological traits under more naturalistic controlled environments can function as a bridge towards the interpretation of glucocorticoid variation in the wild.

This thesis

6. Our DNA is a combination of two components, two layers of information. One layer of information (…) is fixed, and very hard to change. The other layer of information is the epigenetic layer, which is open and dynamic and sets up a narrative that is interactive (…). So even though we are determined by our genes, we have a degree of freedom that can set up our life to a life of responsibility.

Szyf, M. (2018). Mosche Szyf: How early life experience is written into DNA [video file]. Retrieved from https://www.ted.com/talks/moshe_szyf_how_early_life_experience_is_written_into_dna.

7. Bad times have a scientific value. These are occasions a good learner would not miss.

Emerson, R. W. (1860). The conduct of life. Ticknor and Fields.

8. The fairest thing we can experience is the mysterious. It is the fundamental emotion which stands at the cradle of true science. He who knows it not, and can no longer wonder, no longer feel amazement, is as good as dead.[1] The true scientist never loses the faculty of amazement. It is the essence of his being.[2]

1. Einstein, A. (1949). The world as I see it. New York, Philosophical Library.
2. Selye, H.. Newsweek (31 Mar 1958)